

REMARKS

Claims 23-46 are currently pending in this application. Original PCT claims 1-23 and amended PCT claims 1-22 were canceled and claims 24-47 (renumbered as claims 23-46 by the Examiner) were added by Preliminary Amendment. This Amendment amends the Abstract, amends claims 23-26, 28, 29, 31-33, and 35, and add new claims 47-53. Support for the amendments to the Abstract, the amendments to the claims, and the new claims can be found in the specification, drawings, and claims as originally filed. No new matter has been added.

The Examiner objected to the Abstract of the disclosure for certain language informalities. In accordance with the Examiner's suggestion, the phrase "The present invention relates to a" has been replaced with "A" and the phrase "amounts to" has been replaced with "ranges between". Also, the language "comprising" has been replaced with "includes".

The Examiner has also objected to claims 26 and 35 for certain language informalities. In accordance with the Examiner's suggestion, the word "it" in claim 26 has been replaced with "the foldable mirror" and the phrase "the outer ends" in claim 35 has been replaced with the words "outer ends". In view of the above amendments to the Abstract and to claims 26 and 35, withdrawal of these objections is respectfully requested.

The Examiner has rejected claim 23 under 35 U.S.C. § 112, second paragraph, for indefiniteness. The Examiner asserts that the phrase "the distance between the standing walls amounts to" is not clear. This phrase has been deleted from claim 23 in this Amendment. Therefore, the rejection of claim 23 is moot.

The present invention, as claimed in amended independent claim 23, is directed to a device for scanning and/or recognizing one or more barcodes. The device includes a laser light source for transmitting laser light, a rotatable polygonal mirror for reflecting the transmitted laser light, a number of fixedly disposed flat mirrors for reflecting laser light, a pick-up element for picking up laser light scattered by a barcode, and a compact housing to be hand held in which the laser light source, the polygonal mirror, the flat mirrors, and the pick-up element are arranged. The housing is constructed from a bottom side which is substantially flat for placement of the housing, a top side, a standing rear wall, a standing front wall, and two standing side walls arranged therebetween. The device is to be used

alternately in a hand held mode and a fixed mode. A fixed mode scan pattern or a hand mode scan pattern is cast through the standing front wall, wherein both scan patterns are cast through one and the same window in the housing.

The Examiner has rejected claims 23, 25-28, and 32-46 under 35 U.S.C. § 103(a) for obviousness over British Published Patent Application No. GB 2 345 370 A to Tamburrini et al. (hereinafter “the Tamburrini reference”) in view of U.S. Patent No. 5,629,510 to Quinn et al. (hereinafter “the Quinn patent”). The Examiner asserts that the Tamburrini reference teaches the claimed invention except for the distance between the standing walls, and that the Quinn patent teaches a housing having a distance of about 1.5 inches. The Examiner has combined the Quinn patent with the Tamburrini reference and asserts that it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to incorporate the teachings of the Quinn patent into the teachings of the Tamburrini reference in order to provide a more compact system.

Independent claim 23 has been amended to include the limitation that the device is to be used alternately in a hand held mode and a fixed mode, and that a fixed mode scan pattern or a hand mode scan pattern is cast through one and the same window in the housing. Support for the amendments to claim 23 can be found, for example, in claim 24, and on page 9, lines 20-22 and page 11, lines 14-21 of the present specification. In view of the amendments to claim 23, claims 23 and 32 are believed to be distinguishable over the Tamburrini reference and the Quinn patent for the reasons discussed below.

The Tamburrini reference is directed to a bar code reading device that can operate in a fixed mode and a portable mode. The device includes a laser light source 550 for transmitting a scanning beam 556 (page 21, lines 29-31), a rotatable polygonal mirror for reflecting laser light (Figs. 16-17 and page 21, lines 15-17), a number of fixedly disposed flat mirrors for reflecting laser light (page 22, lines 1-2), a pick-up element for picking up the laser light scattered by a bar code (page 23, lines 8-12), and a compact housing (Figs. 1, 3-10, 13, 14, and 19). The housing has two distinct scan windows 104 and 108 (Fig. 1), one for the hand mode operation and another for the fixed mode operation, for casting two respective laser light scan patterns. The Tamburrini reference does not teach or suggest both scan patterns being cast through one and the same window in the housing.

The Quinn patent is directed to an improved miniature scanning module for scanning bar codes, which requires minimal space. The scanner is housed in the housing 14

that is about 1.5 inches wide, about 1.0 inch high, and amount 0.75 inch deep (column 5, lines 29-32). Figs. 8 and 10 of the Quinn patent show the scanner having rotor body 22 adapted with surface 62 to receive parabolic mirror 20 which is affixed by adhesives to surface 62. The mirror 20 has a design curvature (column 5, lines 65-66).

None of the prior art of record teaches or suggests a fixed mode scan pattern and a hand mode scan pattern being cast through one and the same window in the housing as claimed in amended claim 23. In fact, every embodiment of the scanning device disclosed in the Tamburrini reference includes two scan windows (i.e., 104 and 108 shown in Fig. 1; 304 and 308 shown in Figs. 3-5; 354 and 358 shown in Fig. 6; 404 and 408 shown in Fig. 8; 444 and 448 shown in Fig. 10; 508 and 514 shown in Figs. 13-14; and 712 and 714 shown in Fig. 19). The Quinn patent also does not disclose two scan patterns or even a window in the housing. Therefore, amended claim 23 is believed to be patentable over the Tamburrini reference and the Quinn patent and in condition for allowance. Claim 32 depends directly from amended independent claim 23 and is likewise in condition for allowance.

As discussed in detail below, claims 35-36 and 38-46 are also believed to be patentable over the Tamburrini reference and the Quinn patent. One of the limitations recited in independent claim 35 includes a polygonal mirror placed with outer ends thereof on the rotating support member. The Quinn patent does not teach or suggest a polygonal mirror. Although the Tamburrini reference discloses the use of a polygonal mirror, the attachment of the mirror to the rotating support member occurs at the center and not at the outer ends as claimed in claim 35. Figs. 16 and 17 of the Tamburrini reference show the polygonal mirror on a rotating shaft that engages a central bore of the mirror. Therefore, there is no teaching, suggestion, or motivation in the prior art references to attach the polygonal mirror at the outer ends as claimed in claim 35. The motivation to modify the teachings of the Tamburrini reference and the Quinn patent to attach the polygonal mirror at the outer ends must come from the prior art references. The specific attachment of the polygonal mirror at its outer ends is an important factor in reducing the weight and size of the scanning device. Because the polygonal mirror does not have to be designed with a central bore for receiving a drive shaft, the polygonal mirror can take very simple form, thus making the mirror less inclined to heat deformation. In addition, the absence of a drive shaft and other related components for receiving a drive shaft can reduce the size and weight of the scanner. Further, without the

drive shaft, a lighter motor can be used to accomplish the same rotational speed resulting in less heat generation and less weight of the scanner.

In view of the above, it would not be obvious to an artisan of ordinary skill in the art to provide a polygonal mirror that is placed with the outer ends on a rotating support member. Therefore, claim 35 is believed to be in condition for allowance. Because claims 36-42 and 45 depend either directly or indirectly from independent claim 35, they are also believed to be in condition for allowance.

Regarding the rejection of claims 25-28 and 33-34, the Examiner asserts the combination of the Tamburrini reference and the Quinn patent teach a folded mirror, a movable mirror, a single lens, and a reflected mirror, but does not teach a first mirror surface and a second mirror surface that reflects laser light thereon. The Examiner contends that it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to incorporate a foldable mirror into the teaching of the Tamburrini reference and the Quinn patent in order to provide a more compact system (i.e., one single mirror having two types of surfaces). As discussed below, Applicants respectfully traverse the rejections of these claims.

First, because claim 25-28 depend either directly or indirectly from amended independent claim 23, claims 25-28 are believed to be allowable over the prior art for the same reasons discussed above in connection with independent claim 23. Next, independent claim 33 has been amended to specifically identify that the foldable mirror includes a first front surface and a second rear surface for reflecting laser light. Support for the amendments to independent claim 33 can be found, for example, in claim 34, Figs. 3 and 5, and page 12, lines 12-24 of the present specification.

The Tamburrini reference discloses a fold mirror 273 which is not foldable between two positions, nor movable, but is fixed and redirects laser light incident thereon towards the polygonal mirror. The Quinn patent discloses a parabolic mirror 20 that does not reflect laser light on both a front and rear surface. The Examiner cannot use Applicants' disclosure as a blueprint to reconstruct the claimed invention from the isolated pieces of the prior art references. The motivation to modify the teachings of the Tamburrini reference and the Quinn patent to include one foldable mirror having two different surfaces must come from the prior art references. There is no teaching, suggestion, or motivation in the Tamburrini reference and the Quinn patent, either alone or in combination, to include one

foldable mirror having two different surfaces. Therefore, claim 33, and claim 34 dependent therefrom, are believed to be in condition for allowance.

In view of the above, withdrawal of the rejections and allowance of claims 23, 25-28, and 32-46 are respectfully requested.

The Examiner has rejected claims 24 and 31 under 35 U.S.C. § 103(a) for obviousness over the Tamburrini reference in view of U.S. Patent No. 5,306,900 to Metlitsky et al. (hereinafter “the Metlitsky patent”) for the reasons discussed in item 10, pages 6 and 7 of the Office Action. The Examiner has combined the Metlitsky patent with the Tamburrini reference and asserts that the Metlitsky patent teaches scan patterns being cast through one and the same window 224. Therefore, the Examiner contends that it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to incorporate the teachings of the Metlitsky patent into the teachings of the Tamburrini reference in order to provide a more compact scanning system having only one scanning window instead of two. Applicants respectfully traverse the rejection of these claims.

The Tamburrini reference has been discussed above. The Metlitsky patent is directed to a hand held bar code scanner that includes a hand-held housing 12 having a base 14. Fig. 4 of the Metlitsky patent shows a laser subassembly 28 on an oscillating support 26 (column 3, lines 45-46). The housing also includes a stationary reflecting mirror 222 positioned in the path of the emitted laser beam emanating from the laser subassembly 28. The mirror 222 redirects the laser beam toward one side of the housing. Returning light from the symbol being read passes through the window 224 and is collected by a photodetector 44 (column 5, lines 43-53). Laser light from a single scan pattern is both cast through window 224 and collected through scan window 224. The Metlitsky patent does not teach or suggest two scan patterns (i.e., a fixed mode scan pattern and a hand mode scan pattern) that are cast through one and the same window in the housing. The scanner of the Metlitsky patent can only function as a hand scanner and, therefore, only has one scan pattern. The motivation to use one scan window for two scan patterns for two different modes of operation must come from the prior art. There is no teaching, suggestion, or motivation in the Tamburrini reference or the Metlitsky patent to include two scan patterns for two different modes of operation (i.e., hand mode and fixed mode) being cast through the same window in a housing. Although the limitation of casting both scan patterns through one window has been deleted from claim 24 and incorporated into amended independent claim 23, claims 24 and 31, which

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depend either directly or indirectly from amended independent claim 23, are believed to be distinguishable over the Tamburrini reference and the Metlitsky patent for the reasons discussed above. Therefore, withdrawal of the obviousness rejection and allowance of claims 24 and 31 are respectfully requested.

The Examiner has rejected claims 29 and 30 under 35 U.S.C. § 103(a) for obviousness over the Tamburrini reference as modified by the Quinn patent and further in view of U.S. Patent No. 4,958,894 to Khowles. The Examiner cites the Khowles patent for the teaching of a coil and bumper, wherein the coil serves as a means for oscillating the mirror about an axis and the bumper serves as a blocking means for keeping the mirror in position. Because claims 29 and 30 depend either directly or indirectly from amended independent claim 23, they are believed to be allowable for the same reasons as discussed above in connection with amended independent claim 23.

New Claims

New claims 47-53 have been added. Support for new claims 47-53 can be found in the specification, drawings, and claims as originally filed.

New independent claim 51 is similar to amended independent claim 23. In particular, support for the limitation of the distance between the standing walls in the housing, as claimed in new claim 51, can be found, for example, on page 16, lines 29-31 of the present specification. Because claims 47-50 depend either directly or indirectly from amended independent claim 23 and claim 52 depends from independent claim 51, claims 47-52 are believed allowable for the same reasons discussed above in connection with amended independent claim 23.

New independent claim 53, which is similar to new claim 51, further defines the dimensions of the housing. Support for these dimensions of the housing can be found, for example, on page 16, line 38 to page 17, line 2 of the present specification. None of the prior art of record teaches or suggests all of the claim limitations claimed in new claim 53. Therefore, new claim 53 is also believed to be allowable over the prior art of record.

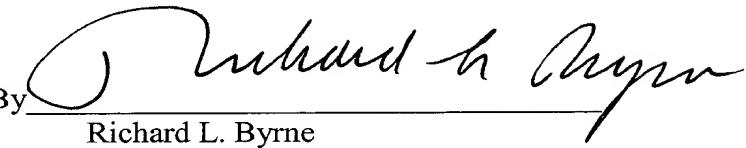
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Conclusion

In view of the above remarks and amendments to claims 23-26, 28, 29, 31-33, and 35, reconsideration and withdrawal of the rejections of the claims and allowance of claims 23-46 and new claims 47-53 are respectfully requested.

Respectfully submitted,

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